

ABSTRACT OF THE DISCLOSURE

5 An apparatus for detecting wavelength change of a first light signal comprises an amplitude splitting interferometer and a detector. The amplitude splitting interferometer comprises first and second optical paths. The first optical path has a first index of refraction that varies with wavelength over a first wavelength band. The second optical path has a second index of refraction that is relatively constant over the first wavelength band. In operation the first light signal enters and exits the amplitude splitting interferometer forming interference light. The interference light couples to the detector which detects the wavelength change of the first light signal from the interference light. An interferometer comprises a first beam splitter, third and fourth optical paths, and a 10 second beam splitter. The third optical path is optically coupled to the first beam splitter and has a third index of refraction that varies with wavelength over a second wavelength band. The fourth optical path is optically coupled to the first beam splitter and has a fourth index of refraction that is relatively constant over the second wavelength band. The second beam splitter is optically coupled to the first and second optical paths such that in operation an incident light enters the first beam splitter and exits the second beam splitter forming an output light and further such that in operation a change in wavelength of the incident light within the wavelength band causes a change in interference of the 15 output light.